**APPENDIX A: PROGRAMS**

"There's certainly a connection between mental illness and 'thinking out of the box.' If you're going to be anything like a genius, you have to think out of the box." John Nash

CMMI enables a globally competitive and sustainable future for the nation by supporting fundamental research that advances the frontiers of knowledge. Support is focused on areas related to designing, building and securing critical civil infrastructure and the nation's manufacturing and enterprise systems. CMMI also invests in engineering education by supporting activities that promote an adaptable, creative and knowledge-enabled engineering workforce for the future. The twenty research programs that comprise CMMI provide funding to advance engineering across the Division's focus areas.

NEES

A significant portion of CMMI's portfolio supports the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES). It is a unique system of 15 geographically distributed, shared-use, experimental facilities located at universities across the United States that work together via the NEES grid cyberinfrastructure and a central data depository with a curator.
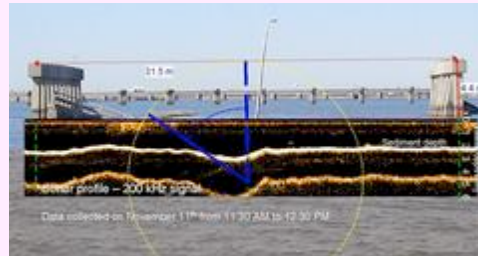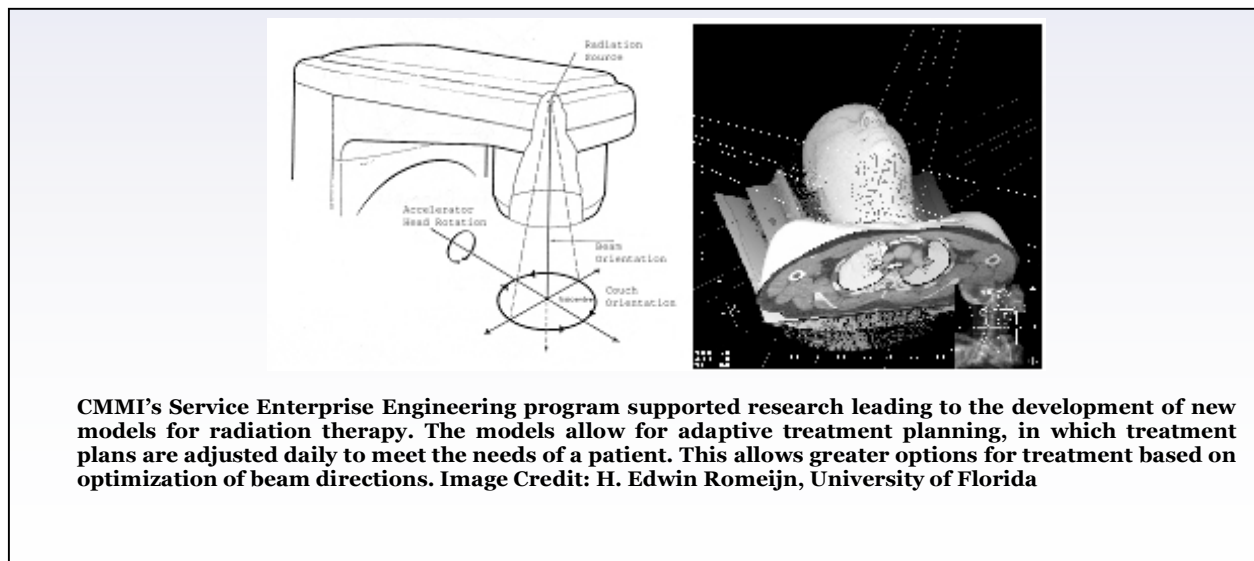

Programs in CMMI's Engineering Infrastructure Systems Cluster have sponsored immediate scientific response to such natural disasters as flooding in New Orleans caused by Hurricane Katrina in September 2005 and research in the aftermath of the December 2004 Great Sumatra-Andaman Earthquake and Tsunami. Photo Credits: Credit: Professor Toshitaka Katada, Gunma University, Japan; Dante Fratta and Carlos Santamarina, University of Wisconsin-Madison

This unique research facility addresses important challenges in earthquake and tsunami engineering research, and is complemented by core programs such as the Infrastructure Systems Management and Hazards Response program.

Investments in fundamental research in these areas allowed ENG to quickly send research teams to gather ephemeral data following Hurricane Katrina. These data can be used now to design systems to mitigate damage and loss of life from similar natural hazards.

Manufacturing & Service Systems Research

CMMI's design, manufacture and service portfolio is the largest of the federal agencies that support fundamental research and discovery that is not product- or mission-driven. This unique role has led to early investments in solid-modeling systems that today are the critical technical link in design and manufacturing enterprises; optimization and network methods that are the basis for supply chains and Internet services; and processes that not only provide solid representations directly from digital data, but also scaffolding to enable engineered processes for growing tissue. This curiosity and innovation-driven research at universities has contributed to increases in productivity and enabled the creation of new enterprises that have benefited the nation.

CMMI's Service Enterprise Engineering program supported research leading to the development of new models for radiation therapy. The models allow for adaptive treatment planning, in which treatment plans are adjusted daily to meet the needs of a patient. This allows greater options for treatment based on optimization of beam directions. Image Credit: H. Edwin Romeijn, University of Florida

Nanomanufacturing and Nano/Bio-Mechanics

CMMI also supports nanoscale science and engineering in the Materials Transformation and Mechanics cluster through the NanoManufacturing and Nano/Bio-Mechanics programs. These programs have a critical role in converting nanoscience discoveries into innovations that benefit society, and are a key component of the ENG New Frontiers in Nanotechnology priority area in meeting the grand challenges for the National Nanotechnology Initiative.

A range of manufacturing discoveries and innovations are needed to design the systems and processes to deliver products, devices and components that take advantage of the unique properties of nanoscale elements. Simultaneously, an entirely new manufacturing workforce needs to be educated and trained in nanotechnology to bring to fruition the many exciting opportunities that nanotechnology has opened. CMMI's NanoManufacturing program will continue to support research on improving human performance through the integration of nanotechnology, biotechnology, information

technology and cognitive science.

Cross-cutting research

CMMI also supports many crosscutting activities. This research focuses on systems that are inherent to many CMMI programs and enables connectivity between the division and priority areas across NSF. CMMI Program Directors have led or participated in NSF priority areas for the ENG such as the Materials Use: Science, Engineering, and Society (MUSES) on Biocomplexity in the Environment (BE), which supports the design and synthesis of new materials that have environmentally benign impact on biocomplexity systems. In addition, CMMI program directors have participated in the Mathematical Sciences priority area, which offers multidisciplinary opportunities in partnership with the Division of Mathematical Sciences for advances in mathematical theory needed for innovations across size scales. CMMI assumes the lead role in ENG's participation in the Human and Social Dynamics priority area as well. CMMI program directors also work with other federal agencies including NIH, AFOSR, DOT, DOE, and NIST on various initiatives and collaborations.

The division also supports the development of people through NSF-wide programs and supplements, such as CAREER, ADVANCE, REU and RET.
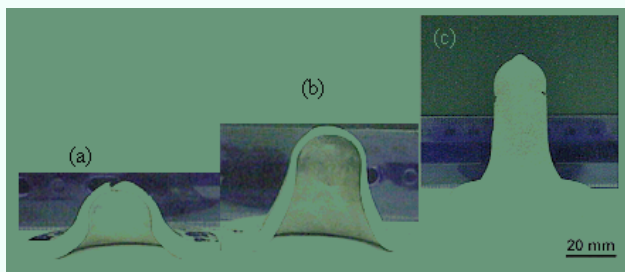
Researchers at the University of Missouri-Rolla have studied the use of friction stir processing to refine grains of metal alloys. Friction stir processing uses mechanical mixing of metals to alter the grain structure. Potential applications of this research are in the automotive and aviation sectors. This work on the fundamental understanding of the role of alloy chemistry and process parameters on friction-stir-processed microstructure and superplasticity can further enrich this solid-state processing technology.
Photo Credit: Rajiv Mishra, University of Missouri-Rolla

Programs and Program Directors:

Materials Transformation and Mechanics Cluster

Mechanics and Structure of Materials: Supports research on computational, theoretical, analytical and experimental solid mechanics, model-based simulation and constitutive models; thin-film mechanics; viscoelasticity; plasticity; size and strain-rate effects; and the link of microstructure to nano- and meso-scale mechanical behavior. The program also supports experimental, numerical and analytical research on deformation, fatigue and fracture due to mechanical and environmental forces as well as interfaces of wet and dry materials.

Infrastructure Materials and Structural Mechanics: Supports research to advance the knowledge base on properties and the application of advanced structural materials; on the repair, retrofit, and rehabilitation of structural components; on the durability of structural materials and components, including effects derived from interaction with the natural and constructed environment; on innovations and constitutive characterization of new construction materials; and on the behavior of infrastructure materials and structural components.

Geomechanics and Geotechnical Systems: Supports research in geotechnical engineering, foundation engineering, soil and rock mechanics and dynamics, underground construction, and mining engineering. Supports research that will increase geotechnical knowledge for foundations, slopes, excavations and other geostructures, including technologies for strengthening soil and rock and reinforcement systems. Also funded is research on constitutive modeling and verification in geomechanics; transferability of laboratory results to the field scale; and non-destructive, remote and *in-situ* evaluation of soil and rock properties.

Nano- and Bio-Mechanics and Materials: Supports research in mechanical properties of engineering materials and systems containing nanoscale features, such as grains, layers, precipitates or composites; mechanical properties of biological materials, which include cell, tissues, muscles, bones and prosthetic implants; design of materials suitable for prosthetic implants; relationship between nanomechanics, adhesion and tribological properties; effects of environment, surface chemistry and temperature; and computational and experimental tools to study nano- and bio-mechanics of materials.

Materials Design and Surface Engineering: Supports generic research on links between microstructure design and control and properties, and on performance and engineering of materials and surfaces for novel applications in civil and mechanical systems and components. Research is also included that expands the knowledge base on: the design of materials, coatings, and surface treatments for service under extreme conditions; tribology, corrosion, friction and wear; novel materials solutions for life-cycle design, ecomaterials, nano-technology, and biomedical applications; and related model-based simulation and computational materials engineering.

Materials Processing and Manufacturing: Supports research to expand the fundamental knowledge base that is needed to realize desired product attributes through the application of the systematic integration of processing-material-performance relationships. Also supports research activities that incorporate connectivity of this materials processing knowledge to sensing systems for process control.

NanoManufacturing: Supports fundamental research at the nanoscale, and supports the transfer of developments in nanoscience and nanotechnology discoveries from the laboratory to industrial application. The program emphasizes scale-up of nanotechnology for high-rate production, reliability, robustness, yield and efficiency,

and for reducing costs, in manufacturing products and services. NanoManufacturing capitalizes on the special material properties and processing capabilities at the nanoscale, and promotes integration of nanostructures to functional micro devices and meso/macroscale architectures and systems. It also addresses issues inherent to interfacing across dimensional scales. The program provides support for education in nanoscale phenomena and manufacturing.

The seven-story, 275-ton reinforced concrete structure tested on the University of California-San Diego, NEES shake table demonstrated a less costly seismic design method for residential structures in southern California. This test involved collaboration between researchers at the University of California, San Diego, and a consortium of California engineering and design companies and was supported by funding from CMMI's George E. Brown, Jr. Network for Earthquake Engineering Simulation program (NEES).

Photo Credit: Professor Jose Restrepo, Department of Structural Engineering, University of California, San Diego

THE ENGINEERING INFRASTRUCTURE SYSTEMS CLUSTER

Geoenvironmental Engineering and Geohazards Mitigation: provides support for projects on geoenvironmental engineering, including physical, chemical, thermal and biological processes that affect the properties of geologic materials; contaminant transport and hydraulic properties of geologic materials involved in surface and subsurface flow; and construction for remediation and containment of geoenvironmental contamination. The program also supports research in geological engineering and engineering geology, geotechnical earthquake engineering and strong-ground motion, piping (particle erosion, transport, and deposition), scour, tsunamis (earthquake- and non-earthquake-generated), landslides and debris flows.

Network for Earthquake Engineering Simulation: formally the George E. Brown Jr. Network for Earthquake Engineering Simulation (NEES),it comprises a network of 15 earthquake engineering experimental equipment sites. These sites host shake tables, geotechnical centrifuges, a tsunami wave basin, unique large-scale testing laboratory facilities, and mobile and permanently installed field equipment. The NEES networking cyberinfrastructure connects, via Internet2, the equipment sites and provides telepresence, a central data repository that has a curator. It also connects simulation tools and collaborative tools for facilitating on-line planning, execution, and post-processing of experiments. As an integrated network, NEES offers opportunities for conducting earthquake engineering research investigations at a large scale, or at the systems level, in a more systematic way than previously possible through use of multiple, independent equipment sites. The expected result is more accurate characterization of how structures and geomaterials respond to

seismic loading. This research is needed to extend theory; to realize model-based simulation; to design computational and visualization tools; to design practice and codes in earthquake engineering; to create cost-effective technologies for design, retrofit and remediation; to improve experimental simulation techniques and instrumentation; and to use sensor technology.

Information Technology and Infrastructure Systems: supports research focused on the renewal of civil infrastructure systems—such as transportation, water supply, sanitation, power generation and the built environment—by promoting application of advanced information technologies for assessing conditions and deterioration, and for asset-management sciences. It also creates scientific and engineering knowledge for the design, construction, maintenance, operation and decommissioning of the built environment.

Infrastructure Management and Hazard Reduction: supports research on multidisciplinary issues concerning the impact of natural, technological, and human-generated hazards on critical infrastructure systems and on society. The program seeks to integrate research from engineering, social and behavioral sciences, political sciences and economics approaches. Also supported is research related to preparedness for, response to, recovery from, and mitigation of disasters resulting from natural, technological and human-generated hazards.

Structural Systems and Hazard Mitigation of Structures: supports experimental, analytical and computational research on designing structural systems and enhancing their performance. The program supports research on new technologies for improving the behavior and response of structural systems subject to natural hazards; fundamental research on safety and reliability of constructed systems and of indoor environmental conditions; innovative developments in analysis and model-based simulation of structural behavior and response including soil-structure interaction; design concepts that improve structure performance and flexibility; and the application of new control techniques for structural systems.

Manufacturing Machines and Equipment: supports research leading to the understanding and modeling of fundamental manufacturing processes, such as cutting, drilling, grinding, electrical discharge machining, and the various additive processes related to solid freeform fabrication, utilization and integration of sensors into the manufacturing process, and machine and manufacturing system operation and control. The latter includes closed-loop control of manufacturing machines, tool path generation and operation sequencing, parts feeding, holding and fixturing, metrology, and quality control and manufacturing in machine design.

The CMMI Service Enterprise Engineering program funded researchers at Texas Tech University and the University of Illinois at Urbana-Champaign to develop an innovative approach to representing the performance of existing and proposed airport baggage screening technologies using a cost-benefit analysis approach to define each systems absolute and relative costs and risks. They found that investment in new baggage screening technologies is only justified when baggage-prescreening systems are accurate enough to be appropriately targeted on high-risk passengers. The results have been presented to the Transportation Security Administration (TSA) to assess how investments in new technologies balance detection accuracy with the ability to effectively deploy such technologies.

Credit: Rajan Batta, Colin Drury, and Li Lin, University of Buffalo

INNOVATION SCIENCES AND DECISION ENGINEERING CLUSTER

Control Systems: supports research and education in the prediction and control of complex systems, with broad applicability to civil and mechanical systems. The program considers proposals for innovative advances in control theory and control technology. Control theory refers to the mathematical framework to analyze, design, or validate control systems. Control technology refers to the integration of sensing, actuation, and computation with physical or information systems to realize a working control system. The control technology component also considers innovative advances in actuation concepts.

Dynamical Systems: supports advances in the understanding, design and operation of dynamic systems, such as nonlinear, hybrid, time-varying, multi-energy domain and distributed dynamical systems. Examples of application areas include acoustics and vibration analysis, noise and vibration control technologies, kinematic relationships, biological systems, micro- and nano-scale systems, multi-scale dynamic systems, large-scale interconnected complex systems, integrated analysis and design of dynamic systems, theory and application of dynamical systems (modeling, analysis, simulation and synthesis), and simulation-based engineering and science.

Engineering Design: supports research in the fundamental theories and tools supporting the product realization and innovation processes. The program supports research based on a framework for design that includes synthesis and integration methods for conceptual design, identification and definition of preferences, analysis of alternatives, effective accommodation of uncertainty in decision-making, methods and measures for validation of models, innovative information technologies and systems, automation techniques and visualization, and the effective use of computational techniques that integrate human desires and experiences.

Manufacturing Enterprise Systems: provides support to address research on design, planning and control of operations in manufacturing enterprises, from shop floors to the associated procurement and distribution supply chains. Contributions affect and extend the range of analytical and computational techniques to extended enterprise operations, and/or advance novel models offering policy insights or the prospect of implemental solutions for manufacturing applications.

Operations Research: supports research leading to fundamental advances in the science of models and algorithms arising in the study of operations of large-scale systems. This program supports research in three main directions: optimization, simulation and stochastic models, and novel enterprise-wide models based on integrating operations research methodology with advanced high-end computing. The overall emphasis of the program is on research that improves modeling and computational capabilities in operations research.

Service Enterprise Engineering: supports focused research on design, planning and control of operations and processes in commercial and institutional service enterprises that extend the range of analytical and computational techniques available to these systems and advances novel models offering policy insight or the prospect of solutions for implementation in the ever growing in importance service industry.

Sensor Innovation Systems: supports research on acquiring and using data on civil and mechanical systems to improve their safety, reliability, cost and performance. It also supports development of advanced sensors for engineering systems; smart sensing and innovative actuating capabilities that use the sensor data; innovative sensor technology development; and analytical tools and strategies for monitoring health and making diagnosis, and for engineering for smart structures.

APPENDIX B: SELECTED STATISTICS ON CMMI PROGRAMS AND AWARDS

Table B1: Proposal Dwell Time Statistics for CMMI Core Programs, FY 2007

Program	Number of Proposal	Average (Months)	Standard Deviation (Months)	0-6 Months	>6-9 Months	>9-12 Months	>12 Months
1189 MAJOR RESEARCH INSTRUMENTATION	42	6.56	0.63	29%	71%	0%	0%
1464 ENGINEERING DESIGN	124	5.77	1.12	80%	19%	1%	0%
1467 MATERIALS PROCESSING & MANUFCT	304	6.02	1.21	54%	41%	5%	0%
1468 MANUFACTURING MACHINES & EQUIP	117	4.52	1.47	95%	1%	4%	0%
1630 MECHANICS & STRUCTURE OF MATER	148	5.76	1.50	53%	46%	1%	0%
1631 INFO TECH & INFRASTRUCT SYSTEM	111	5.02	1.45	95%	3%	3%	0%
1632 CONTROL SYSTEMS PROGRAM	60	7.18	2.08	23%	57%	20%	0%
1633 MATERIALS DESIGN & SURFACE ENG	108	6.98	1.59	28%	67%	6%	0%
1634 GEOMECHANICS & GEOTECHNIC SYST	72	6.28	1.77	68%	21%	11%	0%
1635 INFRASTRUCT MAT & STRUCT MECHA	93	4.65	1.78	88%	10%	2%	0%
1636 GEOENVIRO ENG & GEOHAZARD MITI	54	6.05	1.84	72%	17%	11%	0%
1637 STRUCT SYS & HAZ MIT OF STRUCT	157	5.54	1.93	80%	13%	6%	0%
1638 INFRASTRUC SYS MGMT & HAZ RESP	73	5.21	1.78	85%	11%	4%	0%
1639 SENSOR TECH FOR CIVIL & MECH	152	5.87	1.24	74%	21%	5%	0%
1786 MANUFACTURING ENTERPRISE SYS	135	5.63	1.40	82%	16%	1%	0%
1787 SERVICE ENTERPRISE ENGINEERING	87	5.44	1.30	79%	20%	1%	0%
1788 NANOMANUFACTURING	208	4.89	1.07	87%	12%	0%	0%
5514 OPERATIONS RESEARCH	117	5.35	1.35	91%	4%	5%	0%
7396 NEES RESEARCH	64	5.70	0.78	91%	8%	2%	0%
7478 DYNAMICAL SYSTEMS	115	6.59	1.62	23%	67%	10%	0%
7479 NANO/BIO MECHANICS	198	5.76	1.69	82%	14%	4%	1%

Table B2: Core Program Proposal Funding Statistics, FY 2007

Program	Number of Proposals Received	Number of Awards (Research Grants)	Success Rate	Average Award Amount	Average Award Duration
1464 ENGINEERING DESIGN	119	17	14.30%	$332,705.47	3.27
1467 MATERIALS PROCESSING & MANUFCT	301	45	15.00%	$282,587.44	2.61
1468 MANUFACTURING MACHINES & EQUIP	108	23	21.30%	$317,788.00	2.97
1630 MECHANICS & STRUCTURE OF MATER	136	21	15.40%	$340,004.69	3.31
1631 INFO TECH & INFRASTRUCT SYSTEM	105	11	10.50%	$234,398.80	3.00
1632 CONTROL SYSTEMS PROGRAM	57	15	26.30%	$233,682.47	3.20
1633 MATERIALS DESIGN & SURFACE ENG	106	27	25.50%	$260,034.77	3.38
1634 GEOMECHANICS & GEOTECHNIC SYST	70	10	14.30%	$288,547.50	2.68
1635 INFRASTRUCT MAT & STRUCT MECHA	91	16	17.60%	$209,922.60	2.93
1636 GEOENVIRO ENG & GEOHAZARD MITI	50	8	16.00%	$286,617.00	2.86
1637 STRUCT SYS & HAZ MIT OF STRUCT	142	18	12.70%	$258,040.67	2.97
1638 INFRASTRUC SYS MGMT & HAZ RESP	67	7	10.40%	$306,026.50	2.83
1639 SENSOR TECH FOR CIVIL & MECH	150	18	12.00%	$295,111.40	3.33
1786 MANUFACTURING ENTERPRISE SYS	134	22	16.40%	$327,280.79	3.21
1787 SERVICE ENTERPRISE ENGINEERING	81	12	14.80%	$325,349.50	3.20
1788 NANOMANUFACTURING	202	28	13.90%	$275,321.30	2.74
5514 OPERATIONS RESEARCH	115	20	17.40%	$299,783.56	2.89
7396 NEES RESEARCH	60	10	16.70%	$1,123,371.80	2.90
7478 DYNAMICAL SYSTEMS	111	17	15.30%	$279,899.06	3.19
7479 NANO/BIO MECHANICS	188	31	16.50%	$204,813.26	2.71

FY 2007 CMMI Research Awards verus Received Proposals
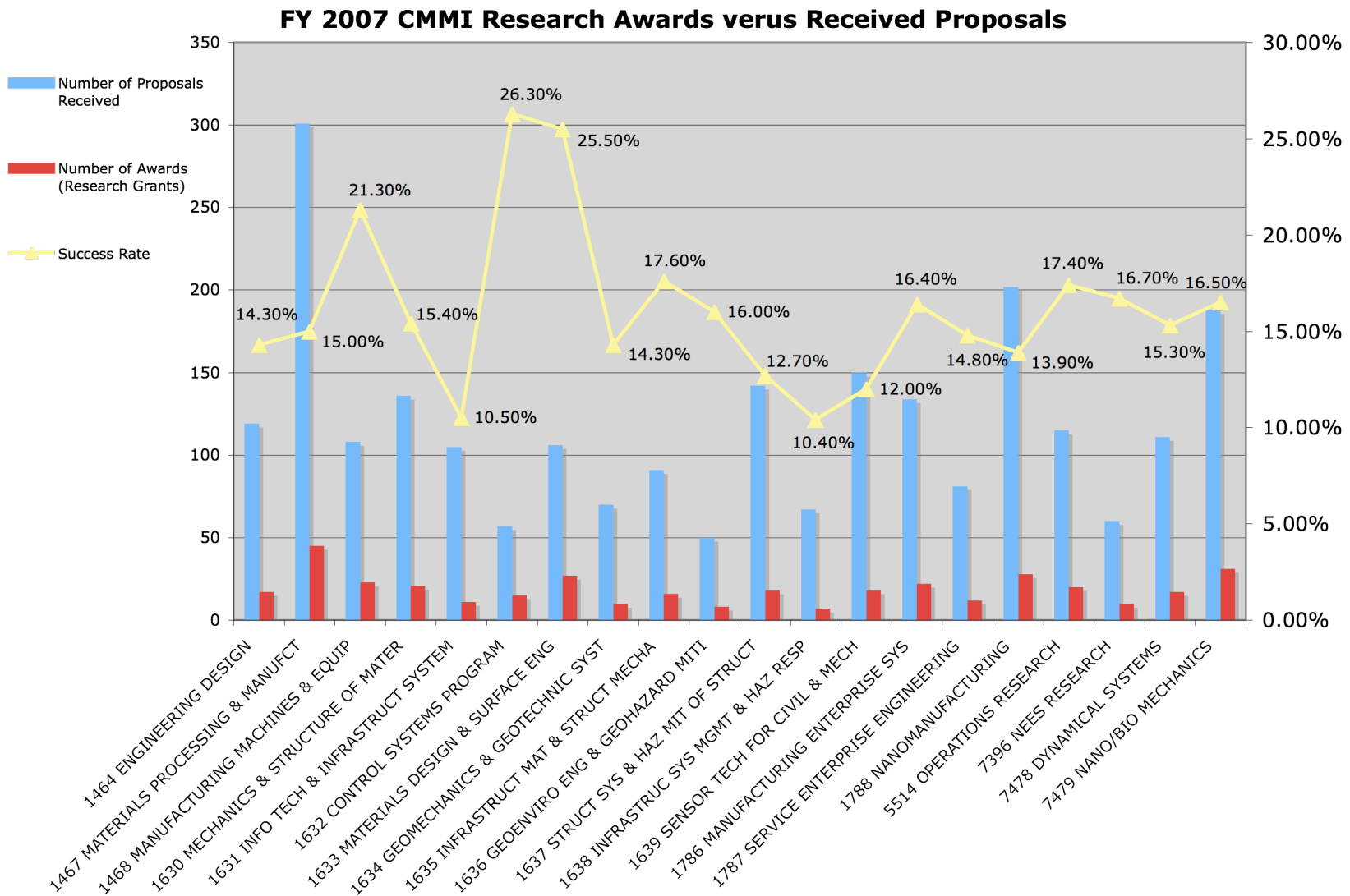
This figure represents funding rates of the 20 CMMI Core programs from FY 2007 as a function of the number of proposals received versus the number awarded as well as each program's success rate.

Table B3: Selected CMMI GPRA Statistics

Core Programs	Percent of Research Awards to New PIs	Percent of Proposals Processed w/in 6 Mos. of Receipt	Average Duration of Research Grants	Average Award Size	Percent of Reviews Addressing Both Review Criteria	Reviews Without Review Criteria	Percentage of Reviewers from Under Represented Groups	Reviewers from Under Represented Groups
1464 ENGINEERING DESIGN	35%	89%	3.33	$113,239	85%	76	37%	11
1467 MATERIALS PROCESSING & MANUFCTURING	30%	92%	3.07	$111,967	94%	60	38%	15
1468 MANUFACTURING MACHINES & EQUIPMENT	7%	100%	3.10	$111,248	95%	82	9%	2
1630 MECHANICS & STRUCTURE OF MATERIALS	12%	89%	3.43	$106,129	92%	39	26%	6
1631 INFO TECH & INFRASTRUCT SYSTEM	50%	98%	3.75	$90,856	93%	28	27%	7
1632 CONTROL SYSTEMS PROGRAM	20%	71%	3.17	$84,886	96%	6	30%	7
1633 MATERIALS DESIGN & SURFACE ENG	30%	56%	3.25	$84,896	96%	14	27%	6
1634 GEOMECHANICS & GEOTECHNIC SYST	20%	68%	3.00	$82,974	98%	7	25%	9
1635 INFRASTRUCT MAT & STRUCT MECHANICS	27%	99%	3.40	$91,133	97%	38	59%	10
1636 GEOENVIRO ENG & GEOHAZARD MITIGATION	27%	88%	2.55	$78,167	94%	12	35%	19
1637 STRUCT SYS & HAZ MIT OF STRUCTURES	33%	77%	3.36	$74,957	94%	32	38%	15
1638 INFRASTRUC SYS MGMT & HAZ RESPONSE	57%	57%	1.89	$110,212	96%	28	53%	9
1639 SENSOR TECH FOR CIVIL & MECHANICAL SYSTEMS	29%	97%	3.18	$94,417	98%	29	52%	12
1786 MANUFACTURING ENTERPRISE SYSTEMS	33%	95%	3.00	$86,135	95%	26	31%	11
1787 SERVICE ENTERPRISE ENGINEERING	53%	72%	3.25	$122,049	94%	47	31%	15
1788 NANOMANUFACTURING	45%	79%	2.98	$119,658	95%	77	33%	16
5514 OPERATIONS RESEARCH	43%	93%	3.21	$102,147	87%	101	16%	4
7396 NEES RESEARCH	14%	91%	3.07	$272,161	96%	23	42%	15
7478 DYNAMICAL SYSTEMS	7%	80%	3.26	$73,337	100%	10	23%	10
7479 NANO/BIO MECHANICS	13%	42%	2.63	$85,121	90%	16	31%	8

APPENDIX C: RECENT SPONSORED WORKSHOPS

Workshops are an important way that CMMI plans for future research focuses via community involvement. The list below is a representation of workshops funded by CMMI programs during fiscal year 2006:

Workshop Title	Sponsoring Program(s)
Workshop for the Investigation, Documentation, and Dissemination of National Science Foundation Research Validation Testbeds at the National Institute of Standards and Technology	Information Systems Management and Hazard Response
The Fourth United States - Japan Workshop on Wind Engineering	Structural Systems and Hazard Mitigation of Structures
Workshop on Modeling Errors and Uncertainty in Engineering Computations; Savannah, Georgia; February 22-24, 2006	Engineering Design, Computational Mathematics (MPS), Applied Mathematics (MPS)
SGER: US-Pakistan Workshop on Collaborative Research, Education, & Development Strategies for Earthquake Hazards Mitigation in Pakistan	Structural Systems and Hazard Mitigation of Structures
Workshop: Advanced Manufacturing Workshop; Arlington, VA; Spring 2006	Engineering Design
INTERNATIONAL WORKSHOP: MICRSOSTRUCTURE AND MICROMECHANICS OF STONE BASED INFRASTRUCTURE MATERIALS	Infrastructure Materials and Structural Mechanics
A Focused Conference on Frontiers in Boundary Lubricating Films	Infrastructure Materials and Structural Mechanics
Workshop: NSF CAREER Proposal Writing Workshop; Wichita State University, Wichita, Kansas; April 6, 2006	Operations Research, Service Enterprise Engineering, Manufacturing Enterprise Systems, GOALI, Manufacturing Machines and Equipment, Materials Processing and Manufacturing, Engineering Design
Workshop: Healthcare Systems Engineering (HSE); Arlington, Virginia; 15-16 June 2006	Service Enterprise Engineering
Workshop for Biologically Inspired Design; Atlanta, Georgia; Spring 2006	Engineering Design
Workshop: A Systems of Systems Colloquium; to be held, Lone Wolf, Oklahoma; Date TBD	Manufacturing Machines and Equipment
Workshop: Solid Freeform Fabrication (SFF) Symposium; Summer 2006; Austin, TX	Manufacturing Machines and Equipment
International Workshop on Predictive Modeling of Composite Materials	Mechanics & Structures of Materials
An International Workshop on Smart Materials and Smart Structures	Sensor Innovation and Systems
Workshop: Smart Systems for Mitigation of Exogenous Threats Using Autonomic Response	Nano-Bio Mechanics, Dynamical Systems, Sensor Innovation and Systems, Control Systems Program, Statistics (MPS)
Workshop: Nanomanufacturing Occupational and Environmental Health & Safety Workshop; Cincinnati, Ohio; December 4-8, 2006	Nanomanufacturing
International Workshop on Bio-Soil Interactions and Engineering	Geobiology & Low Temperature Geochemistry (GEO), Geomechanics and Geotechnical Systems, Environmental Engineering (CBET)
TDR 2006 Third International Symposium and Workshop on Time Domain Reflectometry	Geomechanics and Geotechnical Systems
Study: Enhancing NAFTA Logistics: Synthesizing Opportunities for Companies and their Supply Chains	Manufacturing Enterprise Systems
SGER: Community-Based Research at HBCUs in Response to Community Crisis	Infrastructure Systems Management and Hazard Response
Workshop: Touting the Successes of Environmentally Benign Design and Manufacture: A Symposium; Arlington, Virginia	Service Enterprise Engineering, Engineering Design
WORKSHOP: Product Re-X: Recovery, Recycling, Reuse and Remanufacturing. Innovations in Business Models, Product Design and Economic Development; June 21, 2006	Engineering Design
NSF 2008 Design, Service and Manufacturing Grantees and Research Conference: Building for the Future; Knoxville, Tennessee; January 7-10, 2008	Manufacturing Machines and Equipment

A Workshop to Develop a Strategic Plan for Tsunami Research in the US	Geoenvironmental Engineering and Geohazard Mitigation
Sustainable Manufacturing: IV Global Conference on Sustainable Product Development and Life Cycle Engineering; held in Sao Carolos, Sao Paulo, Brazil; Oct. 3-6, 2006	Service Enterprise Engineering
NSF - Sandia National Laboratories Workshop on Predictive Methods of Analysis for Complex Jointed Structures	Mechanics & Structures of Materials
The World Forum on Smart Materials and Smart Structures Technology 2007 (SMSST'07)	Nano-Bio Mechanics, Dynamical Systems, Sensor Innovation and Systems, Information Technology and Infrastructure Systems, Mechanics and Structures of Materials, Statistics (MPS)
Workshop: Advanced High-Strength Steels: Fundamental Research Issues; Arlington, Virginia; October 23, 2006	Materials Processing and Manufacturing
The 5XME Workshop and Report	Dynamical Systems
Workshop: Frameworks for Integration of Atmospheric-Oceanic Science and Forecasting with Operational Decision-Making; Naval Postgraduate School, Monterey, CA; January 3-5, 2007	Service Enterprise Engineering
Collaborative Workshop on Bio-Nano Manufacturing for Cellular Engineering; March, 2007; NIST, Gaithersburg, Maryland	Nanomanufacturing
Second International Conference on Complementarily, Duality, and Global Optimization in Science and Engineering; Gainesville, Florida; February 28, 2007 through March 2, 2007	Operations Research
Frontiers in Dynamic Systems	Dynamical Systems, Control Systems Program, Sensor Innovation and Systems, Mechanics and Structures of Materials, Applied Math (MPS)